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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/524,803

02/16/2005

Takaaki Kishigami

MAT-8669US

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EXAMINER

TRAN, THINH D

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/524,803	<b>Applicant(s)</b> KISHIGAMI ET AL.	
	<b>Examiner</b> THINH D. TRAN	<b>Art Unit</b> 2466	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29,30,33,34 and 42-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29,30,33,34 and 42-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/11/2010 has been entered.

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 29, 30, 33, 42, 43, 44, 45 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 29, 30, 33, 42, 43, 44, 45, the languages "a deciding section for", "a partial-space orthogonalizing section for", "a beam forming section for", "space-time coding means for" are invoking 12 6th paragraph.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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2. Claims 29, 30, 33, 34, 42, 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 29 line 28 cites "the SDMA communication", there is no antecedent basis for the "SDMA communication".

In claim 29 lines 33-35 cites "the SDM compatible mobile station accessing simultaneously as another transmission beam to the SDM compatible mobile station by use of a same frequency band" is unclear since "another transmission beam" is unclear if the transmission beam is the modified beam from the "beam" in claim 28 line 32 for the SDM compatible mobile that reduce an interference with another of the SDM incompatible mobile station or a new beam to the SDM compatible mobile.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over WALLACE et al. (US 20020193146) in view of ALASTALO et al. (US 20010047424) and WALTON et al. (US 20030128658).

**Regarding claim 44**, WALLACE teaches a base station apparatus comprising: a beam forming section for forming a first transmission beam by use of a maximum ratio synthetic beam in order to send a first transmission data sequence for a SDM incompatible mobile station (**see par. 67, par. 75 and par. 110**), the SDM incompatible mobile station being a terminal allocated for communication with a SDM compatible mobile station at the same time (**see par. 68, par. 129, mixed mode in multiple access**), the beam forming section for forming a second transmission beam in order to send a second transmission data sequence to the SDM compatible mobile station in a manner being orthogonal to the first transmission beam (**see par. 116**), the SDM compatible mobile station being a terminal allocated for SDM communication in a communication area of the base station (**see par. 129**); wherein the beam forming section forms the first transmission beam to the SDM incompatible mobile station by use of one space division multiplex channel (**see par. 104, par. 129, wherein in SISO mode indicates that only a single transmission stream is transmitted from one antenna at the base station to one antenna at the receiver**) and forms the second transmission beam to the SDM compatible mobile station by use of a plurality of space

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division multiplex channels (**see par. 95, par. 100, 101, 129, wherein in MIMO mode multiple antennas transmit to multiple receivers**).

However, WALLACE does not explicitly teach the SDM incompatible mobile station being a terminal allocated for SDMA communication with a SDM compatible mobile station at the same time.

But, ALASTALO in same field of endeavor teaches the access point determine whether space division multiple access technology can be applied for each terminal, whether the terminal can be served simultaneously with one or more other terminals (**see par. 57 and par. 58**);

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the multiple access using SDMA as taught by ALASTOLO in the system of WALLACE.

The motivation would have been to prevent reduce interference and provide more efficient communication resource (see ALASTALO par. 9).

However, ONGGOSANUSI and ALASTALO do not explicitly teach an antenna for transmitting the first transmission beam and the second transmission beam by use of a same frequency band at the same time.

But, WALTON in a similar or same field of endeavor teaches wherein transmit antennas are assigned to a particular frequency subchannel group using the max-max and transmitting channel assigns to terminal for transmit antenna/terminal pairing, which the best SNR is achieved (**see WALTON par. 100-104**);

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the using of max-max for the transmit antennas to assigned a particular frequency subchannel group to provide the best SNR as taught by the WALTON in the system of WALLACE and ALASTALO, to provide an antenna for transmitting the first transmission beam and the second transmission beam by use of a same frequency band at the same time.

The motivation would have been to achieve best SNR therefore reducing interference.

4. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over WALLACE et al. (US 20020193146), ALASTALO et al. (US 20010047424), and WALTON et al. (US 20030128658) as applied to claim 44 above, and further in view of ONGGOSANUSI et al. (US 7,110,378).

**Regarding claim 45**, WALLACE, ALASTALO, and WALTO do not explicitly teach the base station according to claim 44, wherein the second transmission data sequence includes a plurality of third transmission data sequence by performing a weighting process and the plurality of third transmission data sequence have orthogonality.

But, ONGGOSANUSI in a similar or same field of endeavor teaches wherein the second transmission data sequence includes a plurality of third transmission data sequence by performing a weighting process and the plurality of third transmission data sequence have orthogonality (**see col. 5 lines 40-44, col. 10 line 4-7**).

Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to implement the weighting process to provide orthogonality in transmission as taught by ONGGOSANUSI in the system of WALLACE, ALASTALO, and WALTO.

The motivation would have been to enhance orthogonality to reduce interference.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THINH D. TRAN whose telephone number is (571)270-3934. The examiner can normally be reached on Monday to Friday from 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Ryman can be reached on (571)272-3152. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. D. T./  
Examiner, Art Unit 2466  
02/25/2011

/Daniel J. Ryman/  
Supervisory Patent Examiner, Art  
Unit 2466